EXECUTIVE SUMMARY

Every year, devastating floods impact American families by taking lives and damaging homes, businesses, public infrastructure, and other property. This damage could be reduced significantly by providing timely and accurate flood hazard information to the public so the public and community officials can make more informed decisions about their risk. In recognition of the connection between damage reduction and accurate flood maps, the President and the U.S. Congress has provided funding in fiscal year (FY) 02 through FY05 to update the Nation's inventory of Flood Insurance Rate Maps (FIRMs), with additional funding anticipated through FY08. This Multi-Year Flood Hazard Identification Plan (MHIP) defines FEMA's plan for updating these maps through Multi-Hazard Flood Map Modernization (Map Modernization).

Through Map Modernization, FEMA will provide flood maps and data that are more accurate and easier to use.

As part of the U.S. Department of Homeland Security, FEMA is the Federal agency responsible for administering the National Flood Insurance Program (NFIP). FEMA develops FIRMs to identify areas at risk of flooding, to determine flood insurance rates, and for floodplain management and mitigation. Over the next several years, Map Modernization will enable FEMA to provide flood maps and data for communities nationwide that are more accurate, easier to use, and more readily available than ever before. FEMA's vision for this nationwide undertaking provides measurable results while spending taxpayer dollars wisely. Specifically, FEMA will:

- Network the Nation using the latest Internet portal technology to provide access to general flood hazard, risk, and mitigation information. The information and functionality will be tailored to meet the needs of mapping partners, stakeholders, and the general public.
- Maximize the use of local, state, and Federal resources, and transfer ownership and use of maps and data to localities and states by building and maintaining effective partnerships with community, state, and regional entities before and during development of maps and data. FEMA has already experienced considerable success with such transfers through the Cooperating Technical Partners (CTP) program.
- Reduce processing time and cost of map updates and increase accountability for spending by implementing results-oriented systems and standards that will facilitate the rapid exchange of data between partners, stakeholders, FEMA staff, FEMA contractors, and other users.
- Communicate with partners, stakeholders, and users effectively, consistently, and continuously to maximize understanding of flood hazards and the risks that these hazards pose to life and property.

- Continue to improve the quality and accuracy of national flood hazard data by developing Geographic Information Systems (GIS)-based products with reliable technologies that meet enhanced technical standards (see section 7, Level of Study and Level of Risk).

The flood maps are essential tools for mitigating flood hazards in the United States, but they have not been kept fully up to date because of limited funding. In 2004, FEMA nearly 70 percent of the current flood map inventory was more than 10 years old. New and updated flood maps will provide crucial guidance for future building, development, and flood mitigation efforts. Section 1, Introduction, provides details about NFIP flood maps and their use, explains how the MHIP will guide the update of these flood maps, and lists the benefits of updating these maps.

New and updated flood maps will provide crucial guidance for future building, development, and flood mitigation.

MHIP Benefits Stakeholders, Partners, FEMA, and Taxpayers

In support of the NFIP, FEMA has developed an inventory of more than 90,000 flood maps in various formats. With support and funding from the President and Congress, a comprehensive overhaul of this inventory is underway.

The complexity of this task requires a detailed plan for performance, schedule, and cost. The MHIP presents FEMA's initial plan for updating the Nation's flood maps and includes:

- A 5-year (FY04-FY08) sequence for nationwide DFIRM production, based on the planned $1.475 billion for Map Modernization through FY08, identified in the *Budget of the United States Government Fiscal Year 2004*
- A long-term vision to support the decision-making processes of community, local, state, and regional partners
- A planning tool to enable all stakeholders to anticipate future workload requirements such as new flood zone determinations and ordinance adoptions
- A flexible tool that will allow FEMA and its partners to balance national goals with local mapping needs
- An input process that maximizes stakeholder involvement and clear communication (to maintain stakeholder awareness of the planning effort and encourage participation and contributions by partners)
- A methodology for equitable funding distribution
- Initial planned costs and schedules for current and future map updates for counties, parishes, independent cities, and territories nationwide
- A dynamic method to revise scheduling for flood map production for studies funded through FY08 (completed through FY10)

- A mechanism for clear reporting of progress for greater accountability
- An approach for establishing, based on the level of risk, the appropriate level of detail, accuracy, and analysis required to produce reliable maps
- A process for continuous improvement through implementation of cost-saving methods and study/mapping process enhancements that will allow map production to proceed in the most cost-efficient manner
- An infrastructure framework and resource investment that will allow for a risk management approach to multi-hazard information in the future

MHIP Facilitates Long-Term Planning

The MHIP provides mapping partners with a dynamic 5-year plan for updating flood maps, starting in FY04. FEMA will update the MHIP twice annually, and the plan is flexible enough to support the national goals while accommodating:

- Variability in funding
- Evolving needs
- New and updated data and technology
- Continuing FEMA and stakeholder input

This MHIP addresses flood map projects funded from FY04 through FY08 (some studies were funded and started in FY03). That budget provides for map production, hazard data maintenance, ongoing technical support, tool development, customer care and outreach efforts, and program management support. The plan gives FEMA, its partners, and stakeholders a high-level look at total Map Modernization costs and a more detailed look at planned map production costs and schedules.

The MHIP provides a county-level look at planned mapping activities, including proposed project budgets and schedules (appendix A), and presents a series of maps reflecting the schedules (appendix B).

MHIP Helps FEMA Achieve National Map Modernization Goals

Ultimately, FEMA's goal is to improve public safety through the availability of reliable flood risk data. This is expressed in table ES-1 as Map Modernization's Key Performance Parameter. FEMA plans to increase the safety for at least 85 percent of the U.S. population through availability of accurate flood risk data in GIS format. To achieve this goal, FEMA has set targets for key performance indicators (KPIs) through FY09 (production is scheduled for completion in FY10).

Map Modernization will provide the Nation with modernized maps (that is, up-to-date, reliable, digital flood hazard data in GIS format) and will increase the level of local and state involvement in and ownership of that data. FEMA's four KPIs, shown in table ES-1, will track the progress of

Map Modernization annually. These targets for FY06-FY09 depend on the ability to develop local and state capability, and represent significant assumptions. The long-range planning in this MHIP gives FEMA a clear path to meeting these national goals while balancing community and state mapping needs.

Table ES-1. Map Modernization National Performance Goals

Key Performance Parameter (KPP)	Threshold	Objective
KPP: Population whose safety is improved through availability of accurate flood risk data in GIS format	85%	100%

Key Performance Indicator (KPI)	FY04	FY05	FY06	FY07	FY08	FY09
KPI 1: Population with Digital GIS Flood Data Available Online	20%	50%	65%	75%	85%	97%
KPI 2: Population with Adopted Maps that Meet Quality Standards	10%	20%	35%	50%	70%	90%
KPI 3: Leveraged Digital GIS Flood Data	20%	20%	20%	20%	20%	20%
KPI 4: Appropriated Funds Sent to CTPs	20%	25%	33%*	33%*	33%*	33%*

Note: KPIs 1 and 2 are cumulative; KPIs 3 and 4 are annual.

*Note: These targets for FY06-FY09 depend on the ability to develop state and local capability. These are significant assumptions.

In March 2004, the Government Accountability Office (GAO) issued Report GAO-04-417, entitled "Flood Map Modernization: Program Strategy Shows Promise, but Challenges Remain." In this report, GAO recommended that FEMA develop and implement useful performance measures that define FEMA's progress in increasing stakeholders' awareness and use of the new maps, including improved mitigation efforts and increased participation rates in purchasing flood insurance. The KPIs outlined in the plan capture FEMA's goals for updating flood hazard data and maps for the Nation, but refinement of these goals throughout the life of the Program may be warranted.

MHIP Process Provides for Clear Communication

Clear communication among community, state, and regional partners; FEMA Regions; and other stakeholders is critical to the success of Map Modernization. Stakeholder input has been and will continue to be of utmost importance as Map Modernization moves forward. To date, FEMA has drawn input from state and FEMA Regional Office reports and business plans for Map Modernization; from FEMA's Mapping Needs Update Support System (MNUSS); and from stakeholder groups, informal working groups, and other sources. The stakeholders who have provided input represent a wide range of groups. As the MHIP development and update process continues, FEMA will continue to solicit input from these and other stakeholders. Continuous and

consistent lines of communication at multiple levels will drive the development and update process, resulting in better-informed stakeholders and users and better mitigation planning.

FEMA's process provides for stakeholder input and feedback through:

- **Initial Input:** Initial input is based on state business plans and regional business plans. Additional input comes from mapping needs identified by FEMA's Mapping Needs Assessment Process and MNUSS, FEMA's Biennial Report data submitted by communities (when available), status of ongoing projects, and other input from partners.
- **Stakeholder Feedback:** Comments are submitted to FEMA through MHIP@floodmaps.net, discussion during town hall meetings at national conferences, and individual coordination meetings with stakeholder groups at the local, state, and national levels.
- **Two Semi-annual MHIP Updates:** Stakeholders are given the opportunity to analyze any updates to the initial inputs (including new state business plans), and may submit their comments at any time. FEMA also considers external factors such as Congressional input or disasters.

Section 2, Stakeholder Input, provides details on FEMA's current and planned methods for soliciting and incorporating stakeholder input. Appendix C, State Plan Prioritization Summaries, provides an overview of each business plan submitted to FEMA by state and regional partners by November 5, 2004, and considered as part of the development of the MHIP.

MHIP Provides Equitable Distribution of Funds, Balancing National Goals and Local Needs

The process used to distribute funding for mapping projects is evolving and will continue to do so. In FY03, FEMA convened a group of stakeholders to gain a better understanding of what they saw as key factors for making cost and schedule decisions as Map Modernization moved forward. Several of the factors identified involved flood risk. FEMA therefore distributed FY03 funding to be generally commensurate with flood risk.

In GAO's March Report, GAO also recommended that FEMA continue to align resources with flood risk. Aligning available resources with risk will continue to be a major driver for funding distribution decisions and will allow the inclusion of other factors that better represent risk. Section 7 of this Plan contains recommendations for refined mapping standards that align level of study commensurate with flood risk.

FEMA adjusted funding distributions in FY04 to reflect the fact that there is a minimum cost for producing each flood map, regardless of the number of map panels produced, and to reflect both projected and past growth (only past growth was considered in the FY03 funding distribution). For this plan, FEMA assumed funding distribution percentages at FEMA's regional level to be constant for FY04 through FY08. Figure ES-1 shows the factors considered during the funding distribution process for FY03, FY04 and FY05, and FY06 and beyond.

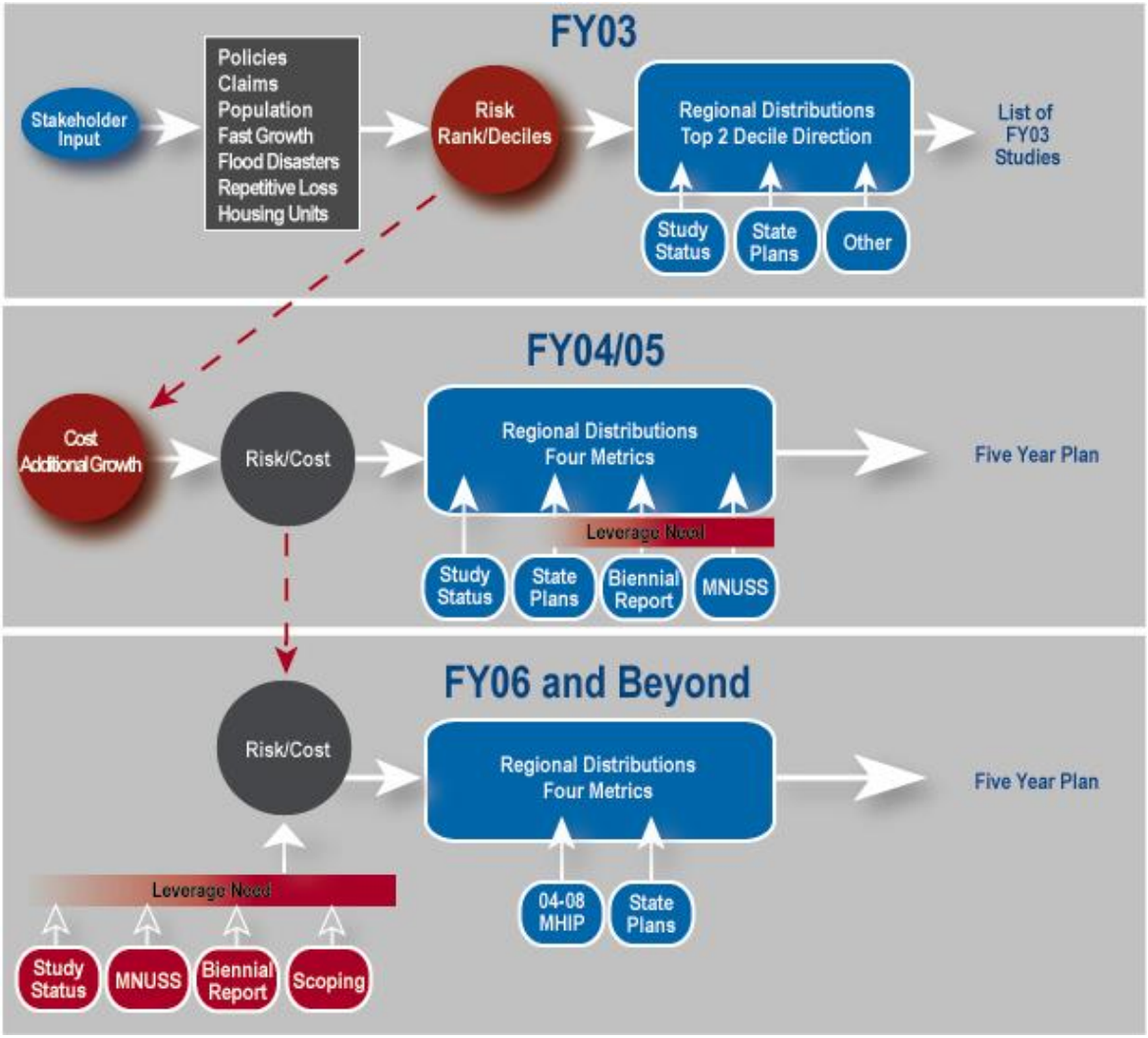

Figure ES-1. Funding Distribution Process

FEMA will continue to make adjustments to regional distributions to reflect the degree to which projects are completed and other considerations, such as the ability to maximize use of data produced by others. FEMA also remains flexible to stakeholder input if additional sequencing factors are determined to be critical and can be incorporated in the distribution of out-year funding. Table ES-2 shows FEMA's planned funding distribution to the Regions.

Not only will FEMA continue to improve the way it distributes funding; it will improve the data and processes associated with assessing risk and need by using advanced GIS tools. Section 3, Distribution of Funds to the Regions, provides details on the planned funding distribution for map production.

Table ES-2. Planned Funding Levels by Region, FY04-FY08

Region	FY04 Funding	FY05 Funding	FY06 Funding	FY07 Funding	FY08 Funding
1	$4,440,000	$5,328,000	$5,661,000	$5,827,500	$5,827,500
2	$9,480,000	$11,376,000	$12,087,000	$12,442,500	$12,442,500
3	$10,080,000	$12,096,000	$12,852,000	$13,230,000	$13,230,000
4	$29,880,000	$35,856,000	$38,097,000	$39,217,500	$39,217,500
5	$14,280,000	$17,136,000	$18,207,000	$18,742,500	$18,742,500
6	$21,000,000	$25,200,000	$26,775,000	$27,562,500	$27,562,500
7	$8,400,000	$10,080,000	$10,710,000	$11,025,000	$11,025,000
8	$5,640,000	$6,768,000	$7,191,000	$7,402,500	$7,402,500
9	$12,120,000	$14,544,000	$15,453,000	$15,907,500	$15,907,500
10	$4,680,000	$5,616,000	$5,967,000	$6,142,500	$6,142,500
Total	**$120,000,000**	**$144,000,000**	**$153,000,000**	**$157,500,000**	**$157,500,000**

MHIP Identifies Current DFIRM Production Progress

Map Modernization flood study projects are already in progress. FEMA is monitoring the ongoing activities related to these projects, including digital flood insurance rate map (DFIRM) production and adoption. The MHIP provides information on the status of flood study projects funded by FY03 and FY04 dollars. Future MHIP updates will provide the status of projects funded by dollars from FY05 and later years.

Through the end of FY04, significant study efforts (for 925 counties) have been funded. FEMA has distributed preliminary DFIRMs to communities in 207 counties. Communities in 104 counties have adopted the final, effective DFIRMs. All of these maps will meet the standards established by FEMA at the time the studies were funded. Some maps were already completed and adopted before FEMA developed the enhanced standards defined in section 7 of this document. FEMA is currently assessing ongoing studies/maps that can be easily improved to meet the enhanced standards. Section 4, FY04 Production Report, provides additional information on DFIRM production and adoption statistics.

MHIP Provides Mechanism for Forecasting and Sequencing DFIRM Production

FEMA has forecasted map production for flood maps funded through FY08 and completed through FY10 (production may take up to 2 years to complete) using data compiled by FEMA's Regional Offices, contractors, and other mapping partners. FEMA will review and update this data regularly at the regional level and will compile and evaluate the data at the national level. These regular reviews will help FEMA evaluate its effectiveness in meeting Map Modernization production goals and report on current progress. Section 5, FY05-FY10 Production Forecast, offers a detailed description of FEMA's process for sequencing of flood study projects to meet national goals and provide reliable, digital flood hazard data for the Nation. Appendix A shows the planned fiscal year

for initial funding, completion of preliminary maps, and map adoption, and planned funding for each year, for every county nationwide.

MHIP Provides a Means for Reporting Progress Toward National Goals and Performance Metrics

The MHIP reports on actual production of map updates for fiscal years past and, as available, for the past portion of the current fiscal year. The MHIP also provides forecasts of out-year map update production in the context of FEMA's national KPIs for Map Modernization. FEMA expects to meet the targets for KPI 1: Population with digital GIS flood data available online, and for KPI 2: Population with adopted maps that meet quality standards for FY05-FY09. Because data is not yet available, FEMA cannot predict future levels of participation and leveraging of data for KPI 3: Effort leveraged from mapping partners or for KPI 4: Appropriated funds sent to CTPs for FY05-FY09. FEMA will develop projections for KPIs 3 and 4 as information becomes available. Section 6, Production Analysis, provides details about anticipated achievement by KPI, by fiscal year.

MHIP Considers Level of Study and Level of Risk

FEMA uses varying types of data collection and analysis methods to develop flood hazard data. These methods vary in their applicability, accuracy, and cost, and are applied in accordance with GAO's recommendation that FEMA "develop and implement standards that will enable FEMA, its contractors, and its local and state partners to identify and use consistent data collection and analysis methods for communities with similar risk."

FEMA is committed to delivering high-quality mapping products to its stakeholders through the use of proven and reliable technologies. These products will be tailored to meet local needs while also supporting the national objective of reducing the Nation's vulnerability to floods. One of the goals of Map Modernization is to provide reliable, Web-based national flood layer in digital GIS format. While the quality of the final digital products will be superior to that of the current maps, stakeholders have expressed concerns that products may be developed by simply digitizing existing maps. FEMA is continuing to enhance its standards for modernized flood maps to address these concerns and to produce reliable flood maps.

Different costs are associated with different types of studies. In general, more complex studies take more time and effort, and therefore cost more than more simple studies. Section 7, Level of Study and Level of Risk, discusses the varying types of data collection and analysis techniques used to develop flood hazard data in order to relate the level of study and level of risk for each county.

MHIP Identifies Cost-Saving Procedures and Tools

Study and mapping costs vary significantly from project to project, but depend primarily on the availability of existing data and the hydraulic complexity of the site studied. The level of

complexity of a study generally drives study costs up; however, the availability of existing data and contributions from others drive FEMA costs down.

Enhanced procedures and processes could reduce the cost per study, perhaps by as much as 50 percent.

The study and mapping activities will be conducted in the most cost-efficient manner possible so FEMA and its partners can realize cost reductions that can be re-invested into the flood maps. FEMA is enhancing procedures, processes, and tools to build capability and increase efficiency. The enhanced procedures, processes, and tools have the potential to reduce the total cost per study significantly—perhaps by as much as 50 percent—and could shorten study and mapping production schedules by as much as 25 percent.

Savings resulting from enhancements—particularly those savings related to administrative processing costs, such as publication of Base Flood Elevations and review and processing of Letters of Map Change—can be re-invested directly into other areas of Map Modernization, including for map production.

Section 8, Cost-Saving Methods and Tools, describes several methods that FEMA plans to implement:

- Modifying FEMA guidelines and specifications to improve usability
- Using FEMA's new data capture standards
- Providing digital study/mapping tools and procedures
- Posting Base Flood Elevations on the Web rather than in placing them in local newspapers for community and citizen review
- Providing processing tools for map amendments and revisions (that is, Letters of Map Change)
- Implementing policies and procedures to readily allow DFIRMs to be used as effective maps in accordance with the Flood Insurance Reform Act of 2004
- Leveraging contributions of local, state, regional, and other Federal agency partners, and continuing development of CTP partnerships

MHIP Allows FEMA To Build on the National Flood Layer To Identify Other Natural and Technological Hazards

Map Modernization provides an infrastructure and resource investment that allows management of multi-hazard information, including data identification, collection, coordination, access, analysis, and dissemination of hazards data for risk mitigation activities. FEMA's National Flood Layer and Multihazard Information Platform, at www.hazards.fema.gov, will provide access to and delivery of shared data resources nationwide. This infrastructure and network of users and data resources will

provide the structure to coordinate, partner, develop, and apply reliable data and information to support risk management applications and operations.

Many of the processes and procedures set forth in this plan also can be applied to multi-hazard management. Much of the multi-hazard data and related program activities nationwide can benefit from the long-term maintenance of MHIP and flood map production. Section 9, Natural and Technological Hazards: Building Upon the National Flood Layer identifies FEMA's plan for multi-hazard applications of the flood data.

Continuing Effort

This MHIP is FEMA's initial plan for implementation for Map Modernization. FEMA will update the plan prior to the release of the Draft FY05-FY09 MHIP in spring 2005 as shown in table ES-3. In the meantime, FEMA will continue to seek the input of stakeholders to ensure that national goals and stakeholder needs are reflected in the plan. The cyclical process will continue with planned releases through FEMA's Flood Hazard Mapping Web Site in the spring and fall of each year. The latest plan will supersede the prior plans.

Table ES-3. FY05 MHIP Development Schedule

Timing	Planning Activities
Fall 2004	Release FY04-FY08 MHIP
Fall-Winter 2004	Business Planning Stakeholder Input
Winter 2004-5	Update Sequencing Revise MHIP
Spring 2005	Release Draft FY05-FY09 MHIP
Summer 2005	Stakeholder Input Update Sequencing
Fall 2005	Revise MHIP Release FY05-FY09 MHIP